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Samir; 1621 Hotel Circle South, #E209, San Diego, CA 92108 (US). KIRBAS, Bilhan; 242 Rosemont Street #C, La Jolla, CA 92037 (US).

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(74) Agent: WADSWORTH, Philip, R.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

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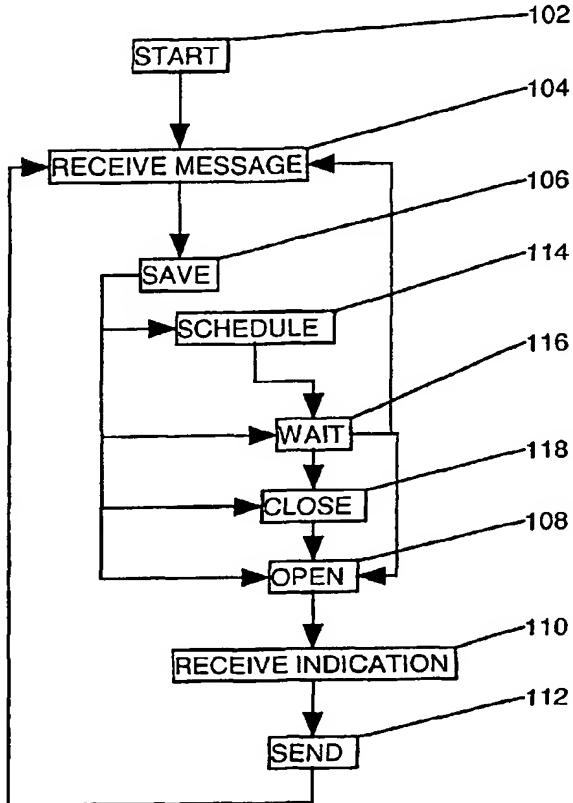
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(71) Applicant: QUALCOMM INCORPORATED [US/US];
5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

(72) Inventors: CHMAYTELLI, Mazen; 1752 Linwood Street #G, San Diego, CA 92110 (US). KHAZAKA,

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(54) Title: STORING AND ORIGINATING VOICE MAIL MESSAGES



(57) Abstract: A telephone stores and originates a voice mail message by receiving it /104) through a microphone, saving it 8106) in the telephone, scheduling it (108) for delivery at a convenient time, waiting (110) until that time, opening (108) a traffic channel to the desired telephone number, receiving (112) an indication that a remote apparatus at that number is ready to receive a message, and sending (112) the message. Second and subsequent messages may be stored and originated, preferably by closing (118) the traffic channel after one message has been sent and re-opening it before another is sent.

WO 02/23874 A2

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STORING AND ORIGINATING VOICE MAIL MESSAGES

BACKGROUND OF THE INVENTION

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Technical Field

[1001] This invention relates to voice mail messaging, and has particular relation to such messaging in wide area networks.

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Background Art

[1002] Voice mail is an excellent business communication tool. A telephone user who is connected to a private branch exchange (PBX) can call into a central switch and leave a message intended for multiple other users of the PBX. The switch places a copy of the message into the voice mail boxes of each recipient -- perhaps after a delay requested by the user -- and notifies the recipient that the box has a message in it. Recipients can reply, attach other messages, forward the message to persons not on the original recipient list, and generally do, with a voice message, what a previous generation could only do with paper and ink. Importantly, it is done much faster than paper and ink mail, thereby generating the contemptuous name "snail mail". Further, a user can call in to the switch from a remote telephone -- even from a portable telephone -- and manipulate the system as though he were sitting at his desk. The modern businessman is never out of touch.

SUMMARY OF THE INVENTION

[1003] With all the attention being paid to the businessman and his PBX, the plight of the non-business user -- who does not have access to a PBX -- has been overlooked. This invention overcomes this limitation by noting that electronic processing power, and memory, have become small enough, fast enough, cheap enough, and power-miserly enough to reside on each individual telephone -- even a portable telephone. Suppose, for example, that a non-PBX user wishes to send the same voice mail message to several of his friends, and to delay sending

the message until the evening. Rates charged by the Telephone Company are lower in the evening, but the user may be unable to place the calls at that time, or may worry that he will forget to. In this situation, this invention stores the message on the user's telephone, waits until the appropriate time, and then 5 sends the messages, one after another, to the various recipients (or their answering machines). No PBX is required, and yet all the capabilities of a PBX system are retained. The invention is particularly suited to wireless telephones, although wireline telephones are also included in the invention.

[1004] In a broad aspect, the invention includes a method for storing and 10 originating voice mail messages, wherein:

- (a) the method includes receiving a voice mail message into a telephone; and
- (b) the method is *characterized in that* the method includes:
 - (1) saving the voice mail message in the telephone;
 - (2) opening a traffic channel to a desired telephone number;
 - (3) receiving an indication that a remote apparatus at the desired telephone number is ready to receive a message; and
 - (4) sending the voice mail message over the traffic channel.

20 **BRIEF DESCRIPTION OF THE DRAWINGS**

[1005] FIG. 1 is a flow chart of a method according to the present invention.

[1006] FIG. 2 is a block diagram of apparatus which carries out the method of FIG. 1

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[1007] FIG. 1 is a flow chart 100 of a method according to the present 30 invention. The telephone starts 102 by having the telephone receive 104 a voice mail message. This is typically done by having the user speak the message into a microphone. However, the microphone can receive sound which is not "voice" in the strict sense of the word, or the telephone may have previously received a voice mail message which the user now desires to forward. All three

of these acts are included in the act of the telephone "receiving" a voice mail message.

[1008] Once the telephone has received the voice mail message, it saves 106 the message in the telephone. No PBX switch is required. It then opens 108 a traffic channel to the desired telephone number. It receives 110 an indication that some remote apparatus (a remote telephone, an answering machine, etc.) at that number is ready to receive the voice mail message (or, more generally, any message). This indication may be, for example, the sound of the remote telephone stopping ringing. When this indication is received, the telephone sends 112 the voice mail message over the traffic channel.

[1009] It may happen that the user prefers to wait before the message is sent. In this case, the telephone schedules 114 the voice mail message to be delivered at some later, convenient, time, and waits 116 until that time before opening 108 the traffic channel.

[1010] While the user is waiting for this convenient time to arrive, he may decide to send a second voice mail message (or at least a second voice mail message; he may decide to send additional messages) to the same recipient. In this case, at least some of the waiting 116 is followed by the receiving 104 of a second message. The second message goes through the same saving 106 and waiting 116 as the first. After the first message is sent 112, the second message is sent on the same traffic channel.

[1011] The user may decide to send the second (or subsequent) message to a second telephone number. In this case, the second message is received 104 and saved 106 as before, but now is scheduled 114 to be sent at a second convenient time. The telephone waits 116 until this time before opening 108 the traffic channel to the second telephone number. The second message undergoes the same readiness indication receiving 110 and sending 112 as before.

[1012] If the scheduled times are different, the traffic channel is closed 118 and then re-opened 108. FIG. 1 shows the channel closing 118 as taking place immediately before the re-opening 108, but it may be closed at any earlier time after the earlier message has been sent 112.

[1013] FIG. 2 is a block diagram of apparatus, a telephone 200, which carries out the method of FIG. 1. Voice 202 is applied to a microphone 204, which converts the voice message into an electrical signal and applies the signal to a processor. The processor 206 also receives input from a keypad 208 as to what

the desired telephone number is, and what the convenient time is for the voice message to be sent. This information could also be entered through the microphone if voice recognition software is included in the telephone.

[1014] The processor 206 may include a timer 210 to initiate the sending of stored messages. The messages are stored in a memory 212. When the convenient time comes, a transceiver 214 (if the telephone is a wireless telephone) opens a traffic channel to a desired telephone number and sends the message when an indication is received that the remote telephone (or other remote apparatus) at that number is ready. If the telephone is not wireless, then 10 the transceiver 214 would be replaced with a line interface.

INDUSTRIAL APPLICATION

[1015] This invention is capable of exploitation in industry, and can be made 15 and used, whenever it is desired to store and originate voice mail messages. The individual components of the apparatus and method shown herein, taken separate and apart from one another, may be entirely conventional, it being their combination that is claimed as the invention.

[1016] While various modes of apparatus and method have been described, 20 the true spirit and scope of the invention are not limited thereto, but are limited only by the following claims and their equivalents, and such are claimed as the invention.

We claim:

CLAIMS

1. A method for storing and originating voice mail messages, wherein:
 - 2 (a) the method includes receiving (104) a voice mail message into a telephone; and
 - 4 (b) the method is *characterized in that* the method includes:
 - 6 (1) saving (106) the voice mail message in the telephone;
 - (2) opening (108) a traffic channel to a desired telephone number;
 - (3) receiving (110) an indication that a remote apparatus at the desired
 - 8 telephone number is ready to receive a message; and
 - (4) sending (112) the voice mail message over the traffic channel.
2. The method of claim 1, further *characterized in that* the method further includes:
 - 4 (a) scheduling (114) the voice mail message to be delivered at a convenient time; and
 - 6 (b) waiting (116) until the convenient time before opening the traffic channel.
3. The method of claim 2, further *characterized in that*:
 - 2 (a) the voice mail message is a first voice mail message; and
 - (b) the method further includes:
 - 4 (1) receiving (104) at least a second voice mail message into the telephone;
 - 6 (2) saving (106) the second voice mail message in the telephone; and
 - (3) sending (112) the second voice mail message over the traffic
 - 8 channel.
4. The method of claim 2, further *characterized in that*:
 - 2 (a) the voice mail message is a first voice mail message; and
 - (b) the method further includes:

4 (1) receiving (104) at least a second voice mail message into the
telephone;
6 (2) saving (106) the second voice mail message in the telephone;
8 (3) opening (108) the traffic channel to at least a second desired
telephone number for the second voice mail message;
10 (4) receiving (110) an indication that a remote apparatus at the second
desired telephone number is ready to receive a message; and
12 (5) sending (112) the second voice mail message over the traffic
channel.

5. The method of claim 4, further *characterized in that* the method further
2 includes closing (118) the traffic channel after one message is sent and re-
opening it before the other message is sent.

6. The method of claim 4, further *characterized in that*:
2 (a) the convenient time is a first convenient time; and
4 (b) the method further includes:
6 (1) scheduling (114) the second voice mail message to be delivered at a
second convenient time; and
6 (2) waiting (116) until the second convenient time before opening the
traffic channel for the second message.

7. The method of claim 5, further *characterized in that*:
2 (a) the convenient time is a first convenient time; and
4 (b) the method further includes:
6 (1) scheduling (114) the second voice mail message to be delivered at a
second convenient time; and
6 (2) waiting (116) until the second convenient time before opening the
traffic channel for the second message.

8. Apparatus for storing and originating voice mail messages, wherein:
 - 2 (a) the apparatus includes means (204) for receiving a voice mail message into a telephone; and
 - 4 (b) the apparatus is *characterized in that* the apparatus includes:
 - 6 (1) means (212) for saving the voice mail message in the telephone;
 - (2) means (206) for opening (108) the traffic channel to a desired telephone number;
 - 8 (3) means (214) for receiving an indication that a remote apparatus at the desired telephone number is ready to receive a message; and
 - 10 (4) means (214) for sending the voice mail message over the traffic channel.
9. The apparatus of claim 7, further *characterized in that* the apparatus further includes:
 - 2 (a) means (208, 210) for scheduling the voice mail message to be delivered at a convenient time; and
 - 4 (b) means (206, 210) for waiting until the convenient time before opening the traffic channel.
10. The apparatus of claim 8, further *characterized in that*:
 - 2 (a) the voice mail message is a first voice mail message; and
 - 4 (b) the apparatus further includes:
 - 6 (1) means (204) for receiving at least a second voice mail message into the telephone;
 - (2) means (212) for saving the second voice mail message in the telephone; and
 - 8 (3) means (214) for sending the second voice mail message over the traffic channel.
11. The apparatus of claim 8, further *characterized in that*:
 - 2 (a) the voice mail message is a first voice mail message; and
 - 4 (b) the apparatus further includes:
 - 6 (1) means (204) for receiving at least a second voice mail message into the telephone;

6 (2) means (212) for saving the second voice mail message in the
telephone;

8 (3) means (206) for opening the traffic channel to at least a second
desired telephone number for the second message;

10 (4) means (214) for receiving an indication that a remote apparatus at
the second desired telephone number is ready to receive a message;
and

12 (5) means (214) for sending the second voice mail message over the
second traffic channel.

12. The apparatus of claim 10, further *characterized in that* the apparatus
2 further includes means (206) for closing the traffic channel after one
message is sent and re-opening it before the other message is sent.

13. The apparatus of claim 10, further *characterized in that*:

2 (a) the convenient time is a first convenient time; and

2 (b) the apparatus further includes:

4 (1) means (208, 210) for scheduling the second voice mail message to
be delivered at a second convenient time; and

6 (2) means (206, 210) for waiting until the second convenient time
before opening the traffic channel for the second message.

14. The apparatus of claim 11, further *characterized in that*:

2 (a) the convenient time is a first convenient time; and

2 (b) the apparatus further includes:

4 (1) means (208, 210) for scheduling the second voice mail message to
be delivered at a second convenient time; and

6 (2) means (206, 210) for waiting until the second convenient time
before opening the traffic channel for the second message.

15. The apparatus of claim 8, *characterized in that* the means for receiving a
2 voice mail message comprises a microphone (204).

16. The apparatus of claim 8, *characterized in that* the means for saving the
2 voice mail message comprises a memory (212).

17. The apparatus of claim 8, *characterized in that* the means for scheduling
2 the voice mail message comprises a timer (210) driven by a keypad (208).

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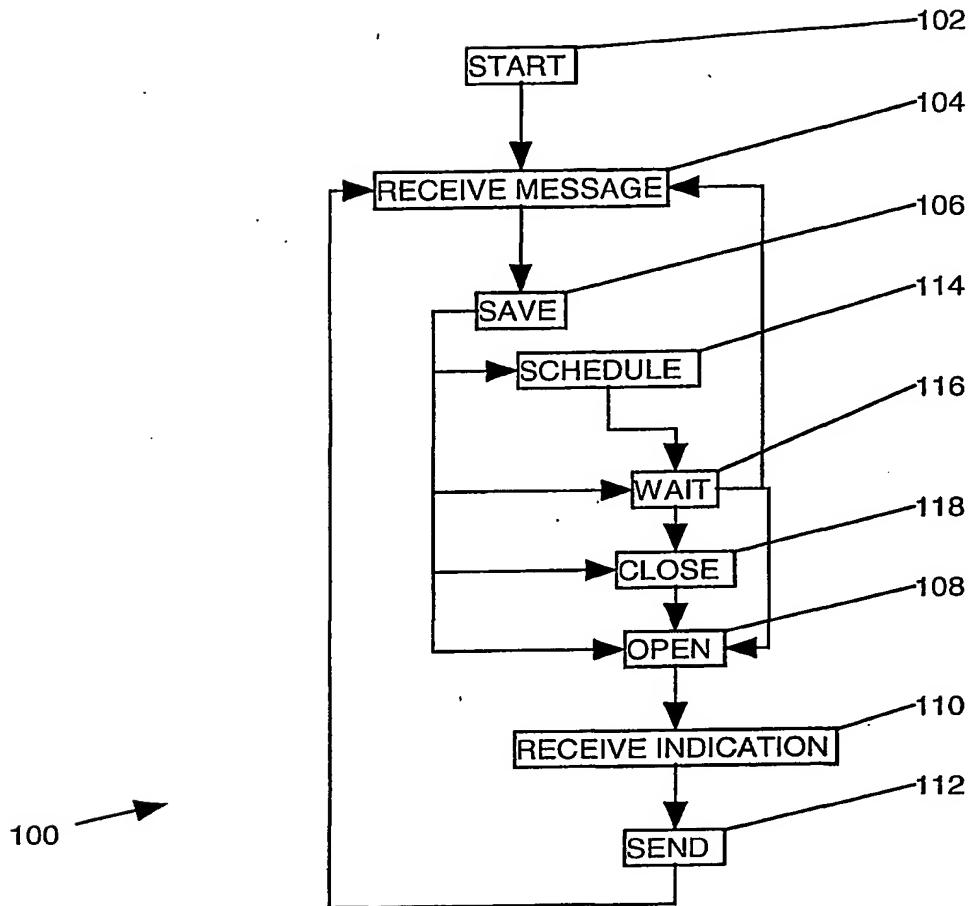


FIG. 1

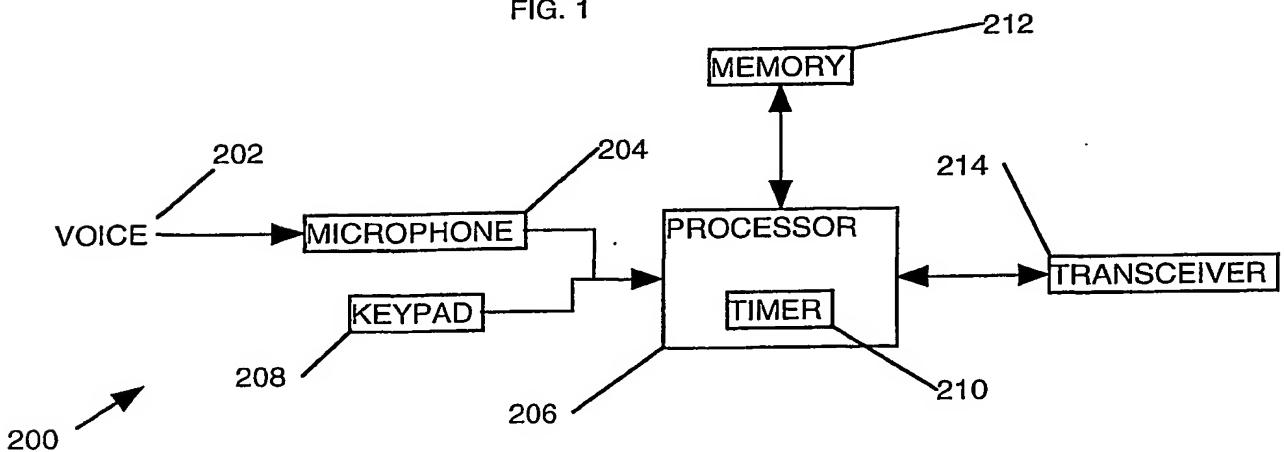


FIG. 2

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